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# Multilingualism and Trait Emotional Intelligence: An exploratory investigation<sup>1</sup>

## Abstract

Recent research suggests that multilingualism, advanced knowledge of several languages and frequent use of them can –to some extent- shape personality traits and psychological dimensions. The present study focuses on the effect of multilingualism on emotional intelligence which has been linked to increased emotional granularity, i.e. a greater store of emotion concepts and an increased ability to know how and when to use them (Feldman-Barret, 2017a, b). Using three databases collected for previous studies to which a total of 1278 participants contributed, the present study explores whether individuals knowing more languages, and knowing them to a higher level scored higher on trait Emotional Intelligence. Statistical analyses revealed that, with one exception, no such relationship existed. Possible reasons for this overall null result is that Trait EI is less susceptible than other personality dimensions to be shaped by social environmental factors such as multilingualism or that the instruments used were too blunt.

## Introduction

Recent research has highlighted the social, economic, cognitive, linguistic and psychological benefits of multilingualism (Bialystok, 2011, 2018; Dewaele, 2016a, b; Hirosh & Degani, 2018; Grin, Sfreddo & Vaillancourt, 2011). This, in turn, is a strong incentive for parents to bring up their children as bi- or multilinguals (Festman, Poarch & Dewaele, 2017). There is a danger however that legitimate enthusiasm for multilingualism and multiculturalism washes away the carefully worded conclusions and the footnotes in the academic papers on the topic. One of the exciting questions is whether multilingualism can shape a person's personality. Some previous research suggests that this is indeed the case for some personality traits, yet with weak effects. Some of these personality traits (Flexibility, Social Initiative, Openmindedness, Emotional Stability) overlap with facets of Trait emotional intelligence, such as self-esteem, empathy, emotional perception, emotional regulation, stress management

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and social awareness. So would multilinguals be more emotionally intelligent? A first tentative answer suggests that this is indeed the case. Alqarni and Dewaele (2018) established that bilinguals scored significantly higher than monolinguals on Trait Emotional Intelligence and suggested that there might be such a thing as a (modest) bilingual emotional advantage. The present study, which could be described as an exploratory review of the link between multilingualism and Trait Emotional Intelligence, will investigate this relationship in greater detail, considering quantitative data collected previously in three separate databases via online questionnaires from a total of 1278 people from around the world.

I will start with a literature review with a focus on the research that has used language measures as independent variables and personality traits and psychological dimensions as dependent measures. This will be followed by the research questions. Next I will present the methodology. The results section will include the statistical analyses which will be discussed in the following section and, finally, some tentative conclusions will be presented.

## **Literature review**

### *The effect of bi- and multilingualism on personality*

Rather than using personality as the predictor variable as is usual in psychological research, Dewaele and van Oudenhoven (2009) flipped the perspective looking whether multilingualism and multiculturalism, enduring social variables, might shape personality traits. The authors used the Multicultural Personality Questionnaire which measures five personality dimensions that are relevant to multicultural effectiveness (Cultural Empathy, Open-Mindedness, Social Initiative, Emotional Stability, and Flexibility) (van Oudenhoven, Timmerman & van der Zee, 2007). Participants were 79 ninth grade pupils in a London school. Forty-one were born outside the UK and 38 were locally-born. The immigrant group, who was more multilingual than the locals, scored significantly higher on Openmindedness ( $p < .01$ , Cohen's  $d = .57$  – an intermediate effect size)<sup>1</sup>, and – marginally higher – on Cultural Empathy ( $p = .07$ , Cohen's  $d = .40$  – a small effect size), but they scored significantly lower on Emotional Stability ( $p < .01$ , Cohen's  $d = .62$  – an intermediate effect size).

In a follow-up study, Dewaele and Stavans (2014) replicated the London study in an Israeli context. Multilingualism turned out to have no effect on scores of the personality dimensions. Israeli-born participants scored marginally higher on Emotional Stability compared to those born abroad ( $p < .07$ , Cohen's  $d = .18$  – just below the threshold for small

effect size). However, a more refined measure of multilingualism, namely participants' global language proficiency and global use of various languages were significant positive predictors of Open-mindedness and Social Initiative, explaining between 5% and 6% of the variance (i.e. small to intermediate effect sizes, cf. Cohen, 1988). Total language proficiency predicted 2.3% of the variance in the scores on Cultural Empathy (i.e. a small effect sizes, cf. Cohen, 1988).

Korzilius, Van Hooft, Planken and Hendrix (2011) also investigated the link between multilingualism and personality traits. They found that employees of a Dutch multinational company who knew more foreign languages had significantly higher scores on Open-mindedness ( $r = .35$ ,  $r^2 = 12.5\%$  and Emotional Stability ( $r = .30$ ,  $r^2 = 9\%$ ) (p. 546). Both effect sizes could be described as intermediate (cf. Cohen, 1988).

Dewaele and Li Wei (2012) looked at the relationship between multilingualism and Cognitive Empathy among 2158 monolinguals and multilinguals from around the world. The knowledge of more languages turned out not to be linked to higher levels of Cognitive Empathy. However, a significant positive link emerged between more granular measures of multilingualism. An ANOVA revealed a significant effect of global frequency on Cognitive Empathy ( $F(2, 1922) = 3.78$ ,  $p < 0.023$ ,  $\eta^2 = .05$  – a small effect, cf. Cohen, 1988). A Tukey HSD post-hoc test showed that the High group scored significantly higher on Cognitive Empathy than the Low group ( $p < 0.019$ ). Global proficiency failed to reach statistical significance ( $F(2, 1934) = 1.58$ ,  $p = 0.15$ ). It thus seemed that participants who used their languages frequently became better communicators and were (slightly) better able to see the world from their interlocutor's point of view.

In a follow-up study based on the same database, Dewaele and Li Wei (2013a) analysed the link between multilingualism and Tolerance of Ambiguity (TA), a lower-order personality trait. A one-way ANCOVA showed that number of languages had a significant effect on TA ( $F(2, 1984) = 8.7$ ,  $p < .0001$ ,  $\eta^2 = .02$  – a small effect size, cf. Cohen, 1988) (p. 235). Participants knowing more languages scored higher on TA compared to those with fewer languages. Post-hoc pairwise comparisons with Bonferroni corrections showed that the differences were strongest between the monolinguals and all others groups (all  $p < .0001$ ), the difference between the monolinguals and the bilinguals was smaller ( $p < .027$ ). The bilinguals scored significantly lower than all other multilingual groups ( $p < .05$ ). TA scores of trilinguals were significantly higher but the trend leveled off for quadrilinguals and pentalinguals (p. 236). Global proficiency in different languages also had a significant effect on TA scores ( $F(2, 1978) = 6.0$ ,  $p < .003$ ,  $\eta^2 = .008$  – just failing to reach the threshold for

“small” effect size (cf. Cohen, 1988). A stepwise regression analysis revealed that stay abroad and number of languages predicted 2.4% of the variance of TA - a small effect size (p. 256). The authors concluded that TA is slightly influenced by an individual’s sociolinguistic and cultural environment and by the need to acquire new languages in order to fit in a new linguistic and cultural environment. When this becomes a matter of survival, it forces people to attune to local communication norms. It also brings home the realization that long-held values, beliefs on verbal and nonverbal communication are not universally shared. Having had to ‘stretch’ themselves, manage conflicting cultural, political and ideological perspectives may have slightly increased their TA. Finally, the authors argued that the relationship between TA and multilingualism could be multi-directional.

Dewaele and Tsui Shan Ip (2013) focused on the relationship between Second Language Tolerance of Ambiguity, Foreign Language Classroom Anxiety (FLCA), and self-rated proficiency among 73 EFL students in a secondary school in Hong Kong. Multiple regression analyses revealed that FLCA predicted 50% of variance in Second Language Tolerance of Ambiguity, with self-rated English proficiency predicting a further 6.6% (p. 56). In other words, tolerance of Second Language Tolerance of Ambiguity was linked to lower FLCA in the EFL classes and a feeling of being more proficient in English.

van Compernelle (2016) partly replicated the Dewaele and Li Wei (2013a) study, looking for links between global proficiency and TA of 379 monolingual, bilingual and multilingual adults. He found that higher levels of global proficiency were significantly positively correlated with TA ( $Rho = .19, p < .0002, \eta^2 = 3.6$  – a small effect size).

Recent work has pursued the question of the effect of global language proficiency and multilingualism and TA among 260 Chinese multilinguals in an EFL context (Wei & Hu, 2018). A one-way ANOVA test ( $F(2, 251) = 2.49, p = .085$ ) revealed that the differences in TA scores of low, medium and high global proficiency groups were not statistically significant, but the effect size ( $\eta^2 = .019$ ), almost reached Cohen’s (1988) small benchmark for  $R^2$ . Number of languages known turned out to be a significant predictor of TA. A hierarchical regression analysis showed that number of languages known explained 1.9% of the variance in TA.

The effect of multilingualism has also been investigated on psychological dimensions such as communicative anxiety and Foreign Language Anxiety (FLA) which have been shown to strongly correlated with Neuroticism (Dewaele, 2017). Multilinguals typically report lower levels of communicative anxiety in their languages (Dewaele, 2010, 2017). Dewaele, Petrides and Furnham (2008) found that among their 464 participants, those

knowing more languages suffered significantly less from anxiety in interactions in their L1 with strangers ( $\eta^2 = .020$ , a small effect size). The same pattern emerged in L2 interactions with friends and strangers ( $\eta^2 = .017$  and  $.016$  respectively). Similar patterns were found in the L3, with slightly higher effect sizes for the various situations in the L3 (interactions with friends ( $\eta^2 = .027$ ), colleagues ( $\eta^2 = .038$ ), strangers ( $\eta^2 = .054$ ), on the phone ( $\eta^2 = .035$ ), and in public speech ( $\eta^2 = .033$ ). The pattern weakened for the L4, with significant effects of multilingualism on FLA in interactions with friends ( $\eta^2 = .016$ ), strangers ( $\eta^2 = .020$ ), and on the phone ( $\eta^2 = .010$ ).

The theory of trait emotional intelligence (Trait EI or Trait emotional self-efficacy) emerged from the distinction between two EI constructs (ability EI and Trait EI; Petrides & Furnham, 2000). Meta-analytic research has revealed that Trait EI measures are much better than ability EI measures in predicting job performance (O'Boyle, Humphrey, Pollack, Hawver & Story, 2011). Trait EI is formally defined as a constellation of emotional perceptions located at the lower levels of personality hierarchies. The construct essentially concerns people's self-perceptions of their emotional abilities and an alternative label for it is trait emotional self-efficacy. Petrides (2017) explained that "Trait EI is currently the only definition that recognizes the inherent subjectivity of emotional experience. That the Trait EI facets are personality traits, as opposed to mental abilities or competencies, is also corroborated by research revealing that the same genes that are implicated in the development of individual differences in the Big Five personality traits are also implicated in the development of individual differences in Trait EI" (p. 2).

Trait EI consists of fifteen facets organized under four main factors: well-being, emotionality, self-control, and sociability (Petrides & Furnham, 2003). The factor well-being is characterized by the ability to feel cheerful and satisfied with life (happiness), to be self-confident (self-esteem), and to look at the bright side of life (optimism). The emotionality factor is related to the ability of taking someone else's perspective (empathy), of being clear about people's feelings (emotional perception), of communicating feelings to others (emotional expression), and of maintaining fulfilling personal relationships (relationships). The self-control factor refers to the abilities to control emotions (emotional regulation), not to give in to urges (impulsiveness), and to withstand pressure and regulate stress (stress management). The final factor is sociability, and it refers to the ability to influence other people's feelings (emotional management), to stand up for one's rights (assertiveness), and to establish networks thanks to social skills (social awareness).

Van der Linden, Pekaar, Bakker, Schermer, Dunkel and Vernon (2017) carried out a meta-analysis showing that the General Factor of Personality<sup>2</sup> and global Trait EI have a high phenotypic overlap. In a follow-up study, GFP was mainly characterized by emotional stability (low neuroticism), conscientiousness, agreeableness, and extraversion (p. 150). Moreover, since GFP has been interpreted as the adult development of the so-called good temperament, Perez-Gonzalez and Sanchez-Ruiz (2014) have argued that Trait EI could be reconsidered “as a comprehensive blend of qualities associated to it” (p. 57).

Trait emotional intelligence is measured through self-report questionnaires such as TEIQue (Trait Emotional Intelligence Questionnaire, Petrides & Furnham, 2003). This questionnaire consists of 30 items with 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree) (Petrides & Furnham, 2003). It allows the calculation of a Trait EI score and its factors.

Psychologists working on the theory of constructed emotions have also put emotional intelligence at the center of their model and have paid particular attention to individuals' conceptual and lexical store. Feldman-Barret (2017a, b) describes emotional intelligence in relation to emotion concepts and the ability to know how and when to use them. She argues that emotionally intelligent people acquire more emotion words as they seed emotion concepts which are the basis for constructing new emotional experiences and predictions (Feldman-Barrett, 2017b). A person who lacks emotional intelligence may have only two emotion concepts “feeling awesome” and “feeling crappy” to describe different affective states (2017b, p. 180). In other words, that person has low emotional granularity. In contrast, an emotionally intelligent person has a large mental store of rich emotional concepts. This emotionally intelligent person has high emotional granularity, which implies an ability to construct emotional experiences with a wide range of shades and differences, “like astonished, amazed, startled, dumbfounded, and shocked. In other words, the brain of an emotionally intelligent person is better prepared to construct more emotion concepts that allow the person to match each emotion word with the suitable emotional situation. Therefore, they can experience, predict, categorize, and perceive emotions “more efficiently” (2017b, p. 180).

Feldman-Barrett (2017c) also argues that broadening one's emotion repertoire is the best way to increase one's emotional intelligence. The learning of new (emotion) words in a first or foreign language—emotion-related or otherwise—boosts the brain's microwiring allowing it to construct more complex emotional experiences, and allow more effortless future perceptions of others' emotions (Feldman-Barrett, 2017c).

Research into Trait EI in applied linguistics is quite limited. The Kruskal-Wallis tests used in Dewaele et al. (2008) revealed that adult multilinguals with high Trait EI suffered less from anxiety in interactions in their L1 with colleagues, strangers, on the phone and in public speech (a calculation of effect sizes reveals that these varied between  $\eta^2 = .027$  to  $.044$ ). The same pattern emerged in L2 interactions with friends, colleagues, strangers, on the phone and in public speech (effect sizes varied between  $\eta^2 = .017$  to  $.026$ ). Identical patterns were found in the L3 (ranging from  $.027$  to  $.054$ ) and lower effect sizes for the various situations in the L4 (ranging from  $.018$  to  $.037$ ). Differences between participants who scored low and average on Trait EI were small. Dewaele et al. (2008) suggested that the high Trait EI participants were slightly better able to judge whether their communicative goals were achieved, whether their interlocutor seemed to respond emotionally as expected and could steer the conversation if necessary, which limited their anxiety. Low Trait EI participants, on the other hand, lacked these abilities which increased their anxiety. They may have experienced a sense of helplessness if they suspected the interaction was not going as planned.

Alqarni and Dewaele (2018) studied emotion perception of 205 Saudi Arabic-English bilinguals and 333 English monolinguals from the United Kingdom, the USA, Australia and Canada. They investigated the effect of the relationship between Trait EI, linguistic proficiency (measured with a lexical decision test) and emotion perception scores after watching six short audio-visual video clips in English embedded in an online questionnaire. The Arabic-English bilinguals were self-selected but the English monolinguals were selected through a digital agency (Survey Gizmo) and compensated for their participation. The Arabic-English bilinguals were found to score significantly higher on Trait EI than the monolinguals (Mann-Whitney  $U = 28424$ ,  $z = -3.3$ ,  $p < .001$ ,  $\eta^2 = .02$  (i.e. a small effect size). The bilingual group scored significantly higher than the monolingual group on three out of four facets of Trait EI: well-being, emotionality and sociability, but they scored lower on self-control. The authors speculate that the bilinguals benefited from a larger number of emotion concepts in Arabic and English which meant they may have developed increased emotional granularity. This could have boosted their Trait EI and therefore increased their ability to construct a variety of emotional predictions that fit each situation (Feldman-Barrett, 2017).

This literature review suggests that multilingualism, advanced knowledge of several languages and frequent use of them has been linked to personality traits and psychological dimensions but that only study, to our knowledge, had reported a link with Trait EI. In the



current contribution I propose to investigate this in more detail re-using databases that were used in previous publications. Study 1 will be based on the database of 464 participants used in Dewaele et al. (2008). Study 2 will be based on the database of 301 participants used in Dewaele, Lorette and Petrides (2019). Study 3 will be based on the database of 513 participants used in Dewaele and Mercer (2018), Dewaele, Gkonou and Mercer (2018), Dewaele, 2018, to appear). The three databases contained Trait EI scores collected with the same instrument: the TEIQue-SF.

## Research questions

The following two research questions have been formulated:

1. Is there a link between the number of languages known to individuals and their level of trait Emotional Intelligence?
2. Is there a link between how well individuals know these languages and their level of trait Emotional Intelligence?<sup>3</sup>

## Study 1

Participants were 464 multilingual adults (341 females, 123 males) who filled out both the Bilingualism and Emotion Questionnaire online (Dewaele & Pavlenko, 2001-2003) and the TEIQue-SF (Dewaele et al., 2008). The average age was 36.5 years ( $SD = 11.1$  years). The participants spoke a total of 43 different first languages, with English representing the largest group, followed by French, Spanish, German, Dutch, Italian, Finnish, Russian, Swedish, Greek, Portuguese, Afrikaans, Hungarian, Danish, and Chinese. The remaining 39 participants shared another 28 first languages. The sample consisted of 98 bilinguals, 118 trilinguals, 122 quadrilinguals, and 126 pentalinguals.

Most participants were highly educated, with 30 having a high school diploma or less, 111 a bachelor's degree, 157 a master's, and 166 a PhD. A majority of participants ( $n = 312$ ) reported working in a language-related area whereas a minority ( $n = 52$ ) worked in professions unrelated to languages. A global proficiency score was calculated for each participant, summing up their self-reported proficiency in speaking, listening, reading and writing in up to five languages (maximal theoretical score is 100). Mean score was 56.1 ( $SD = 15.6$ ) ranging from 18 to 98. Following the same procedure, a global self-reported frequency score was calculated (maximal theoretical score is 25). Mean score was 11.8 ( $SD = 3.3$ ) ranging from 5 to 24.

All participants filled out the TEIQue-SF. Scores on the questionnaire ranged from 83 to 198, with a mean of 157.5 ( $SD = 20.5$ ). The internal consistency of the TEIQue-SF was good (Cronbach's  $\alpha = .79$ ). A one-sample Kolmogorov-Smirnov test showed that the Trait EI values are not normally distributed (K-S  $Z$  value = .086,  $p < .0001$ ). As a consequence, nonparametric statistics were used (Kruskal Wallis test instead of an ANOVA).

### *Results study 1*

A Kruskal Wallis test revealed that the number of languages had no effect on Trait EI ( $Chi^2 = 1.6$ ,  $df = 3$ ,  $p = .66$ ) (see table 1)

Table 1: The effect of number of languages known on Trait EI in study 1 (Kruskal Wallis)

Number of languages known	$N$	Mean Rank
2	69	241.32
3	101	240.23
4	119	233.46
5	174	222.53
Total	463	

A Spearman rank correlation analysis revealed no significant relationship between global proficiency and Trait EI ( $Rho = .013$ ,  $p = .773$ ).

## **Study 2**

A total of 301 participants (151 females, 150 males) contributed to this database (Dewaele, Lorette & Petrides, 2019). The recruitment of participants was organized in 2016 via the television broadcaster Euronews that asked RealEyes Media, a digital agency specializing in advanced internet media applications, to constitute a panel of volunteers matching our selection criteria, i.e., L1 users of British and American English. Participants were remunerated by RealEyes Media with funding from Euronews. The average age was 39 years ( $SD = 14$ ), with a range from 17 to 68 years. Half of the participants were British ( $n = 150$ ) and the other half American ( $n = 151$ ). Most participants were monolingual ( $n = 210$ ). There were also 52 bilinguals, 22 trilinguals, and 15 participants knowing four or five languages.

Participants also filled in an English version of the LEXTALE, a 60-item lexical test developed by Lemhöfer and Broersma (2012). It is a simple un-speeded visual lexical decision task that take less than 4 minutes to complete and measures vocabulary knowledge for medium to highly proficient speakers of English as a second language.

Participants have to decide instantly whether a string of letters is an existing English word or not. It has been judged to give a good indication of overall proficiency. Moreover, because results are not at ceiling level for first language users, it can be used for the assessment of highly proficient first and second language users (Ferré & Brysbaert, 2017). Lemhöfer and Broersma (2012) report that LEXTALE scores correlate highly with those of the Test of English for International Communication and the Quick Placement Test, established tests of English proficiency. Thus, even though LEXTALE was not designed to capture general English proficiency fully, it is nevertheless a useful indicator of it (Lemhöfer & Broersma, 2012). Lorette and Dewaele (2015) showed that the rates of first language users of English on LEXTALE varied between 80% and 100%, i.e. between lower to higher advanced in the Common European Framework (2012, p. 341). The mean score in the present sample was 86.8% ( $SD = 14.2\%$ ), with scores ranging from a minimum of 42.5 to the maximum possible score of 100.

The mean Trait EI score was 141 ( $SD = 24$ ), with scores ranging from 81 to 204. The internal consistency of the scale was good (Cronbach's  $\alpha = .81$ ). A one-sample Kolmogorov-Smirnov test showed that the Trait EI values are not normally distributed (K-S  $Z$  value = .108,  $p < .0001$ ). As a consequence, nonparametric statistics were used.

### *Results study 2*

A Kruskal Wallis test revealed that the number of languages had no effect on Trait EI ( $Chi^2 = .92$ ,  $df = 3$ ,  $p = .82$ ) (see table 2)

Table 2: The effect of number of languages known on Trait EI in study 2 (Kruskal Wallis)

Number of languages	N	Mean Rank
1	210	149.53
2	54	155.28
3	22	143.09
4+	15	167.73

A Spearman rank correlation analysis revealed a significant positive relationship between English proficiency scores and Trait EI ( $Rho = .179$ ,  $p < .002$ ,  $r^2 = 3.2$ , i.e. an intermediate effect size). (see figure 1).

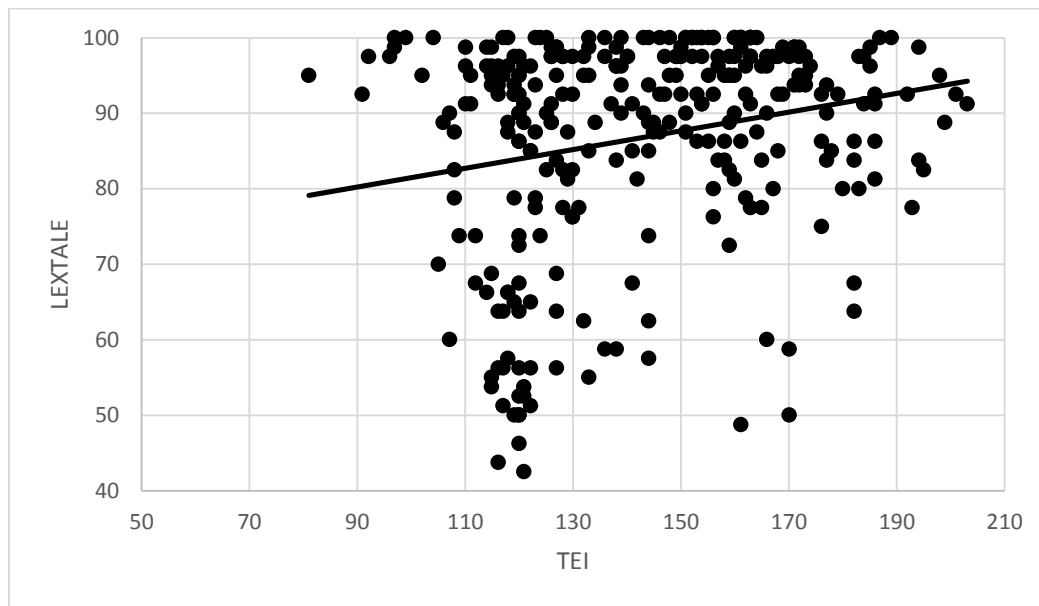


Figure 1: The relationship between English LEXTALE proficiency scores and Trait EI scores in study 2

### Study 3

A total of 513 participants (377 females, 131 males) filled out an online questionnaire in 2017 (the data of which were used in Dewaele & Mercer, 2018; Dewaele, Gkonou & Mercer, 2018; Dewaele, 2018, to appear). All participants were EFL/ESL teachers. The mean age was 40 years ( $SD = 10$ ). The largest group were British, followed by Americans, Ukrainians, Greek, Azerbaijani, Argentinian, Chinese, Indian, Spanish, Turkish, Macedonian, Canadian, and smaller groups of participants with another 64 nationalities. The sample consisted of 15 monolinguals, 113 bilinguals, 174 trilinguals, 104 quadrilinguals, 81 pentalinguals, and 26 participants reporting knowing six or seven languages. English was the most frequent L1. A majority of participants were teaching English at university with smaller numbers teaching in secondary, primary and nursery schools. Participants worked in 110 different countries. The mean Trait EI score was 137 ( $SD = 24.3$ ), with scores ranging from 81 to 177. The Cronbach alpha for the scale was .88. Participants also filled out the LEXTALE test (Lemhöfer & Broersma, 2012). The 136 English L1 users had a mean LEXTALE score of 94.8 ( $SD = 7.6$ ), the 376 LX users had a mean score of 83.5,  $SD = 12.9$ . All the participants thus reached the threshold of lower advanced/ proficient user to use the descriptors of the Common European Framework (Lemhöfer & Broersma, 2012).

### Results study 3

A Kruskal Wallis test revealed that the number of languages was not related to Trait EI ( $\chi^2 = 2.20$ ,  $df = 5$ ,  $p = .82$ ) (see table 3)

Table 3: The effect of number of languages known on Trait EI in study 3 (Kruskal Wallis)

Number of languages	N	Mean Rank
1	15	285.80
2	113	243.47
3	174	263.31
4	104	258.60
5	81	250.59
6+	26	270.54

A Spearman rank correlation analysis revealed no significant relationship between LEXTALE proficiency scores and Trait EI ( $Rho = .065$ ,  $p = .139$ ).

### Discussion

The answer to the first research question is negative, as no statistically significant link was discovered in the three studies between the number of languages known to participants and their level of Trait EI.

The answer to the second research question is negative for studies 1 and 3, but positive for study 2. Global language proficiency was not linked to higher Trait EI scores in studies 1 and 3, but English L1 participants in study 2 who had high scores on the LEXTALE proficiency test also scored significantly higher on Trait EI, which is the only significant result. Considering the research of Feldman-Barrett (2017a, b), one would indeed expect L1 users with higher proficiency to be more emotionally intelligent. It should be pointed out that the nature of dependent variable is slightly different in study 2 and 3, namely proficiency in a single language (English L1), while the measure in studies 1 reflected the sum of proficiency in all languages, not just the L1.

These generally counter-intuitive results, considering the finding of a significantly higher score of bilinguals compared to monolinguals in Alqarni and Dewaele (2018), could be due to both conceptual, methodological or measurement issues. Conceptually one might argue that an individual's Trait EI is less likely to change because of exposure to multiple languages, high levels of proficiency and use of these language compared to other personality traits or dimensions such as Tolerance of Ambiguity, Cognitive Empathy, Cultural Empathy, Open-mindedness and Emotional Stability. It is perfectly possible that some personality traits (like Extraversion) are linked to physiological factors more than social environmental

factors. It is also important to point out that wherever significant relationships were discovered between multilingualism and psychological variables, the effect sizes were always small. We need to keep this in mind and avoid sweeping triumphalist claims about the benefits of multilingualism and multiculturalism.

The fact that Alqarni and Dewaele (2018) found a link where (almost) none were found in the present study could be related to the research design and the population under investigation. Most of the studies that considered the effect of multilingualism included participants knowing a minimum of two languages. The effect of multilingualism thus involved comparing people who knew up to five or more languages, assuming a gradual, more or less linear increase. In contrast, Alqarni and Dewaele (2018) compared monolinguals and bilinguals, i.e. a single categorical distinction. In other words, these participants were at the very bottom of the multilingualism dimension. Moreover, the English monolinguals had been recruited by an agency, in contrast with the bilinguals who were self-selected. It is possible that this difference in recruitment means that the two groups differed in ways that the researchers were unable to measure. Wilson and Dewaele (2010) pointed out that self-selected participants typically provide better quality data because they are more emotionally involved in the topic under investigation. Alqarni and Dewaele's (2018) online questionnaire that involved guessing emotions in video-recordings might therefore have attracted more people with a high degree of Trait EI while the monolingual sample might have a more random sample of the general population.

The unexpected results raise a number of questions, including that of the directionality of potential influences of multilingualism on personality or vice versa, a possibility raised in Dewaele and Li Wei (2013). Multilingualism might be a consequence from a complex combination of both personal features (e.g., personality traits and cognitive abilities) and historical/contextual variables (e.g., family circumstances). Likewise, personality traits might be facilitators or limiters of interest in learning of more languages. Future research might distinguish between multilinguals who became multilingual as the result of a conscious decision, and those who happened to acquire multiple languages from birth. However, such a categorization might be difficult because early multilinguals benefit from greater metalinguistic awareness (Adesope, Lavin, Thompson & Ungerleider, 2010), show increased willingness to acquire new languages later in life and have developed learning strategies that gives them an advantage in additional language learning (Cenoz, 2013).

The issue of measurement could also have played a part in the (largely) null results in

the present study. The TEIQue-SF is a proven and outstanding instrument but it is not geared towards language and emotional granularity. A Trait EI equivalent of the verbal IQ test might be useful for further research on the topic. Further research could focus on the relationship between language measures and specific components of TEI (e.g., self-control, emotionality). Also the self-reported measures of languages known and of frequency of use and proficiency in different skills in different languages are inevitably blunt. The LEXTALE has the advantage of being much more precise, and based on actual performance rather than self-report. However, being a lexical decision task, it allows the rough measurement of a person's proficiency in the language but it says nothing about that person's richness of (emotional) vocabulary. A better measure would thus be an actual language production task on an emotional task.

A disadvantage in comparing different databases is that the unique composition of the sample might have unexpected consequences, as was noted in Alqarni and Dewaele (2018). The participants in study 2 had been recruited through an agency, while the participants in study 3 were self-selected. It is thus not surprising that the L1 users of English in study 2 had a mean score for LEXTALE that approximated that of the LX users of English in study 3. In other words, the linguistic skills of participants in study 2 were unexceptional. Also, the participants in study 3 were much more multilingual, and probably more highly educated, than the participants in study 2.

A limitation of the present contribution is that the same measure (LEXTALE) was used in studies 2 and 3 but not in study 1 which relied on the sum of self-reported proficiency scores in all languages known to participants. Although strong positive correlations have been reported between the self-reports and the LEXTALE (Lorette & Dewaele, 2015), they are different measures.

## **Conclusion**

The aim of the present study was to establish whether a link existed between multilingualism and Trait EI. More specifically, I investigated whether the number of languages known to individuals, their global or actual proficiency in these languages and their global frequency of language use was related to their level of Trait EI. The analysis of three different databases to which 1278 adults from around the world contributed revealed that, with a single exception, this was not the case. This is surprising, given previous literature showing that a weak relationship exists between multilingualism and a range of personality traits and

psychological dimensions, including Trait EI in Alqarni and Dewaele (2018). It could be argued that the finding in the latter study link was an exception because of peculiarities in the research design, namely the fact that the monolingual participants had been recruited and remunerated through an agency while the bilinguals were self-selected, unremunerated participants.

Reasons for the lack of a relationship between multilingualism and Trait EI may lie in the fact that Trait EI is less susceptible to the influence of social environmental factors such as multilingualism. The lack of a relationship could also be attributed to linguistic and psychological measurement issues.

To conclude, there is no doubt that multilingualism has social, economic, cognitive and psychological benefits. However, despite some *prima facie* indications, there is insufficient evidence so far to claim that the benefits of multilingualism extend to Trait EI.

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<sup>1</sup> This is how Cohen (1988) interprets effect sizes:

$d$	$r^*$	$\eta^2$	Interpretation
< 0	< 0	-	Adverse Effect
0.0	.00	.000	No Effect
0.1	.05	.003	
0.2	.10	.010	Small Effect
0.3	.15	.022	
0.4	.2	.039	
0.5	.24	.060	Intermediate Effect
0.6	.29	.083	
0.7	.33	.110	
0.8	.37	.140	Large Effect
0.9	.41	.168	
$\geq 1.0$	.45	.200	

<sup>2</sup> “In terms of the Big Five model, High-GFP individuals would be, on average, open-minded, diligent, sociable, friendly, and emotionally stable” (van der Linden, Schermer, de Zeeuw, Dunkel, Pekaar, Bakker, Vernon & Petrides, 2018, p. 147)

<sup>3</sup> For study 2, this question only applies to the proficiency in English L1.